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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,906	06/01/2001	Fergus Rupert Fitzgerald	P66736US0	5114

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09/16/2003

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EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,906

Applicant(s)

FITZGERALD, FERGUS RUPERT

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23, 26 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 26 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This action is in response to Amendment B filed on 6/30/03. All previous rejections under 35 U.S.C. 112 second paragraph have been overcome. In view of applicants amendment the previous rejections are withdrawn and new rejections are set forth below.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-7, 11-17, 23, 26, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandbergen et al. (U.S. Patent 5,904,265) in view of Dunne (GB 2289436).

Zandbergen et al. are directed to lining a tank. Zandbergen et al. teach a method for lining the tank comprising sand-blasting (keying) the inner surface of the tank and applying a preformed double-walled lining (interstitial grid) to the inner surface (Figure 1 and Column 2, lines 36-37 and 40-43). Zandbergen et al. teach the lining may be reinforced on one or both sides with a glass-fiber-reinforced laminate ply (a corrosion barrier coating on one side and a pliable glass reinforced plastics material on the other side) and the inner glass-fiber-reinforced laminate ply is used to attach the liner to the inner surface of the tank (Figure 1 and Column 2, lines 6-9 and Column 3, lines 35-37). Zandbergen et al. teach the outer laminate ply may have a sealing layer applied to it (Column 3, lines 38-41). Zandbergen et al. teach the lining comprises upper and lower fabrics (facings) (Column 2, lines 48-53). Zandbergen et al. teach the lining may be formed of a plastic (carbon fiber and aramid fiber) material (Column 3, lines 28-31).

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Zandbergen et al. teach impregnating the double-walled lining with adhesive such as ultraviolet curing adhesive and laminating the glass-fiber-reinforced laminate plys directly to the lining, i.e. the laminate plys are attached to the lining by curing the adhesive (Column 3, lines 60-64).

Zandbergen et al. are silent as to the composition of the outer glass-fiber-reinforced laminate ply.

Zandbergen et al. are also silent as to its form prior to applying it to the lining. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the outer glass-fiber-reinforced laminate ply a preformed uv curable laminate ply as it was well known in the art to provide a glass-fiber-reinforced laminate in this form for easy application as a tank lining as shown for example by Dunne.

Dunne is directed to a flexible, uv curable glass-fiber-reinforced sheet. Dunne teaches the sheet comprises a resin matrix, glass-fiber reinforcement fillers, and a radiation sensitive curing catalyst, i.e. photoinitiator. Dunne teaches the sheet has upper and lower nylon protective backings and at least an upper uv protector. Dunne teaches the sheet is applied to the surface of the substrate by removing the lower protective backings, applying the sheet to the surface of the substrate, removing the upper protective backings, and uv-curing the sheet to create a substantially water impermeable lining. Dunne teaches the uv curable glass-fiber-reinforced sheet can be used as a tank lining (Figure 1 and Page 1, lines 16 and 18-20 and Page 4, lines 5-19 and Page 7, lines 15-18).

Regarding claims 5 and 11, as noted above Zandbergen et al. teach the lining comprises upper and lower fabrics (facings) (Column 2, lines 48-53). Zandbergen et al. further teach the lining may be formed of a plastic (carbon fiber and aramid fiber) material (Column 3, lines 28-31). Absent any unexpected results, one of ordinary skill in the art at the time the invention was

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made would have readily appreciated that the plastic material taught by Zandbergen et al. would have also included polyester and polyethylene fibers as these were well known tank lining materials.

Regarding claims 12 and 13, while Zandbergen et al. do not specifically recite lining the tank surrounding the manway last, one of ordinary skill in the art at the time the invention was made would have readily appreciated lining this section of the tank last so as to avoid damaging the parts of the tank previously lined.

Regarding claims 14 and 15, it is noted Zandbergen et al. teach joining sections of the lining along a seam wherein the ducts of the lining can communicate with each other, i.e. the sections would be butt joined to one another along the seam not overlapping one another (Column 3, lines 45-55). Zandbergen et al. do not specifically teach joining the sheets at the seam using tape. However, it is well known in the art to join two materials along a seam using tape, and one of ordinary skill in the art at the time the invention was made would have readily appreciated joining the laminate plys at a seam using tape, as only the expected results would be achieved.

Regarding claim 26, it is noted Zandbergen et al. are silent as to using uv lamps to cure the uv-curing resin. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated using uv lamps to cure the uv resin as uv lamps were well known and conventional in the art and only the expected results would be achieved.

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4. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandbergen et al. and Dunne as applied in paragraph 3 above, and further in view of Bachmann (U.S. Patent 5,269,436).

Zandbergen et al. and Dunne as applied above teach all of the limitations in claims 8-10 except for a teaching on using as the lining (interstitial grid) a metal mesh. However, it is well known in the art to use a metal mesh as lining material as shown for example by Bachmann. One of ordinary skill in the art at the time the invention was made would have readily appreciated using as the lining material taught by Zandbergen et al. as modified by Dunne a metal mesh as was well known in the art as shown for example by Bachmann to increase the strength of the tank wall.

Bachmann is directed to a double-walled tank. Bachmann teach forming the lining (spacer) from a metal (such as aluminum) or plastic mesh material (Column 1, lines 36-40 and Column 2, lines 7-9 and 22-24). Bachmann teaches the metal mesh adds strength while the plastic mesh adds flexibility to the wall (Column 1, lines 51-53 and Column 2, lines 9-12).

5. Claims 18, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandbergen et al. and Dunne as applied in paragraph 3 above, and further in view of Chadbourne et al. (U.S. Patent 4,552,166).

Zandbergen et al. and Dunne as applied above teach all of the limitations in claims 18, 19, and 22 except for a teaching on cleaning, inspecting, and repairing the tank prior to applying the lining. It is well known in the art to clean, inspect, and repair the tank prior to retrofitting as shown for example by Chadbourne et al. One of ordinary skill in the art at the time the invention was made would have readily appreciated cleaning, inspecting, and repairing the tank taught by

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Zandbergen et al. as modified by Dunne prior to retrofitting the tank as suggested by Chadbourne et al. as only the expected results would be achieved.

Chadbourne et al. are directed to retrofitting a vessel with a secondary containment (lining). Chadbourne et al. teach cleaning, inspecting, and repairing the tank prior to retrofitting (Column 1, lines 57-61).

6. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandbergen et al. and Dunne as applied in paragraph 3 above, and further in view of Watkinson (U.S. Patent 5,752,616) and Yamabe et al. (U.S. Patent 4,436,772).

Zandbergen et al. and Dunne as applied above teach all of the limitations in claims 20 and 21 except for a teaching on the inner glass-fiber-reinforced laminate ply, i.e. the ply adjacent the inner wall of the tank, comprising a glassflake epoxy resin. It is well known in the art to use as the glass-fiber-reinforcement layer a layer comprising a glassflake epoxy resin as shown for example by Watkinson and Yamabe et al. Absent any unexpected results, one of ordinary skill in the art at the time the invention was made would have readily appreciated using as the inner glass-fiber-reinforced laminate ply taught by Zandbergen et al. as modified by Dunne a glassflake epoxy as was well known in the art as shown for example by Watkinson and Yamabe et al.

Watkinson is directed to a method of applying a laminate to a storage vessel. Watkinson teaches providing the inside of the vessel wall with a glass-fiber-reinforcement layer (corrosion barrier layer) wherein the layer comprises a glassflake epoxy resin and the layer has a thickness greater than 1000 microns (Column 5, lines 66-67 and Column 6, lines 1-8). Yamabe et al. are

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directed to an anticorrosive coating for bridges or tanks wherein the coating comprises a glass-fiber-reinforcement made of glass flakes in epoxy resin (Column 8, lines 22-27).

Response to Arguments

7. Applicant's arguments with respect to claims 1-23, 26, and 34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

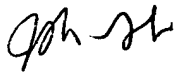
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff
September 10, 2003



Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700